

### **REMARKS**

At the outset, the Examiner is thanked for the thorough review and consideration of the subject application. The Non-Final Office Action of July 31, 2002 has been received and contents carefully reviewed.

By this amendment, Applicants amend claims 1 and 20. In the Office Action, the Examiner objected to the title of the invention as not being descriptive; provisionally objected to claim 20, should claim 13 be found allowable, under 37 CFR §1.75 as being a substantial duplicate of claim 13; rejected claims 6 and 12-20 under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains (or with which it is most nearly connected) to make and/or use the invention; rejected claims 3, 5, 6 and 12-20 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention; rejected claims 1-3 under 35 U.S.C. §102(e) as being anticipated by Kato et al. (U.S. Pat. No. 6,011,609); rejected claims 1 and 7-9 under 35 U.S.C. §103(a) as being unpatentable over Abe (U.S. Pat. No. 5,511,591); rejected claims 1-3, 5, 7, 10, and 11 under 35 U.S.C. §103(a) as being unpatentable over Omeis et al. (U.S. Pat. No. 5,247,377); rejected claim 4 under 35 U.S.C. §103(a) as being unpatentable over Omeis et al. in view of Kim et al. (U.S. Pat. No. 5,742,370); rejected claims 6, 12, 13, 15, and 18-20 under 35 U.S.C. §103(a) as being unpatentable over Omeis et al. in view of Ishii (U.S. Pat. No. 5,642,214); rejected claims 14, 16, and 17 under 35 U.S.C. §103(a) as being unpatentable over Omeis et al. in view of Ishii, and further in view of Kim et al. and Abe; and rejected claims 1-3, 10, and 11 under 35 U.S.C. §103(a) as being unpatentable over Kataoka et al. (U.S. Pat. No. 6,016,178). The aforementioned objections

and rejections are traversed and reconsideration of the title and claims are respectfully requested in view of the following remarks

The Examiner objected to the title of the invention as not being clearly indicative of the invention to which the claims are directed. Although Applicants believe that the title of the invention is clearly indicative of the invention, for the purpose of expediting the prosecution of this application, the title has been changed. Therefore, Applicants request the withdrawal of this objection.

The Examiner provisionally rejected claim 20, should claim 13 be found allowable, under 37 CFR §1.75 as being a substantial duplicate of claim 13. Applicants respectfully submit the aforementioned objection is moot in view of the claim amendment.

The rejection of claims 6 and 12-20 under 35 U.S.C. § 112, first paragraph, as containing subject matter which is not described in the specification in such a way as to enable one skilled in the art to which it pertains to make the invention, is respectfully traversed and reconsideration is requested.

The Examiner states “[c]laims 6, 12, and 20 recite activating the liquid crystal material to have substantially the same characteristics as a liquid crystal material having a lower viscosity”, but that the specification only states that the liquid crystal material is “heat-treated under a proper temperature” and “gives no further details, not even describing what is a ‘typical liquid crystal’.” The Examiner then asks “[i]s the heat-treatment backing, flash-heating, freezing? Which liquid crystal materials (all, some, perhaps only one specific example?) respond to the heat-treatment to change their viscosities...?”

Applicants respectfully submit, however, that subject matter contained within claims 6 and 12-20 is described in the specification at page 9, lines 3-14. In accordance with

Examiner's conclusion "B)", i.e., "such heat treating to produce the viscosity change is well-known within the art, making a detailed description seem superfluous to the applicant" and in accordance with MPEP §2164, i.e., "Detailed procedures for making and using the invention may not be necessary if the description of the invention itself is sufficient to permit those skilled in the art to make and use the invention", Applicants respectfully submit that, upon reading the specification, one of ordinary skill in the art would be enabled to make and/or use the claimed invention.

The rejection of claims 3, 5, 6, and 12-20 under 35 U.S.C. § 112, first paragraph is respectfully traversed and reconsideration is requested.

The Examiner states "[c]laims 3, 12, and 20 recite 'heat-treating' the liquid crystal material" but is not defined by the specification. The Examiner then seeks to clarify the alleged lack of description by asking "[w]hat is the scope of 'heat-treating'? Is there any change of temperature considered 'heat-treating'? Is cooling down the liquid crystal considered 'heat-treating'?"

The Examiner states "[c]laims 5, 6, 12, and 20 recite the viscosity of the liquid crystal material, but do not specify the temperature at which this is measured or the step during which the viscosity has the recited value."

Lastly, the Examiner states "[c]laims 6, 12, and 20 recite 'activated to have substantially the same characteristics as a liquid crystal material having a viscosity of 20 to 50 mm<sup>2</sup>/sec'" and that the aforementioned recitation is unclear.

In response to the three aforementioned statements by the Examiner, Applicants respectfully submit, however, that breadth of a claim is not to be equated with indefiniteness. (See MPEP 2173.04). Moreover, Applicants respectfully submit that the scope of the subject

matter embraced by the claims is clear, that Applicants have not otherwise indicated that the intended invention be of a scope different from that defined in the claims, and that one of ordinary skill in the art would recognize the scope of claims 6, 12, and 20. Accordingly, Applicants respectfully submit that claims 3, 5, 6, and 12-20 comply with 35 U.S.C. §112, second paragraph.

The rejection of claims 1-3 under 35 U.S.C. § 102(e) as being anticipated by the Kato et al. is respectfully traversed and reconsideration is requested.

Claim 1 is allowable over the cited references in that claim 1 recites a combination of elements including, for example, “wherein the deposited liquid crystal material has a viscosity greater than about 20 to 50 mm<sup>2</sup>/sec.” None of the cited references, including Kato et al., singly or in combination, teaches or suggests at least these features of the claimed invention. Accordingly, Applicants respectfully submit that claims 2-11, which depend from claim 1, are allowable over the cited references.

The rejection of claims 1 and 7-9 under 35 U.S.C. § 103(a) as being unpatentable over Abe is respectfully traversed and reconsideration is requested.

Claim 1 is allowable over the cited references in that claim 1 recites a combination of elements including, for example, “wherein the deposited liquid crystal material has a viscosity greater than about 20 to 50 mm<sup>2</sup>/sec.” None of the cited references, including Abe, singly or in combination, teaches or suggests at least these features of the claimed invention. Accordingly, Applicants respectfully submit that claims 2-11, which depend from claim 1, are allowable over the cited references.

The rejection of claims 1-3, 5, 7, 10, and 11 under 35 U.S.C. § 103(a) as being unpatentable over Omeis et al. is respectfully traversed and reconsideration is requested.

Claim 1 is allowable over the cited references in that claim 1 recites a combination of elements including, for example, “providing first and second substrates; forming first and second orientation films on the first and second substrates, respectively; ... wherein the deposited liquid crystal material has a viscosity greater than about 20 to 50 mm<sup>2</sup>/sec; forming a seal material at edges of the first substrate; and attaching the first and second substrates” None of the cited references, including the Omeis et al., singly or in combination, teaches or suggests at least these features of the claimed invention. Accordingly, Applicants respectfully submit that claims 2-11, which depend from claim 1, are allowable over the cited references.

The Examiner states that Omeis et al. “discloses... where the liquid crystal material has a viscosity greater than 100mm<sup>2</sup>/sec [col. 5, lines 4-6].”

Applicants respectfully submit that, at column 5, lines 4-6, Omies et al. states “As a rule of thumb, liquid crystalline substances with a viscosity ( $\eta$ ) in the range of 100-10<sup>4</sup> cp can be applied directly as a coating.” Applicants respectfully submit that the measurement of viscosity in “cp” or “centipoise” as cited in Omies et al. is known as the “absolute”, or “dynamic” viscosity of liquid crystalline substances. Viscosity, as recited above in the aforementioned claim, is measured in mm<sup>2</sup>/sec is known as the “kinematic” viscosity of liquid crystalline substances. Kinematic viscosity is defined as the absolute viscosity divided by the mass density of a particular substance, in this case a liquid crystalline substance. Accordingly, Applicants respectfully submit that it is not possible make any meaningful comparison between the “absolute” viscosity value of one liquid crystalline substance and the “kinematic” viscosity value of another liquid crystalline substance.

The Examiner further states that Omeis et al. "does not disclose forming a second orientation film on the second substrate or forming a seal material at edges of the first substrate." The Examiner then takes Official Notice that "it would be obvious to... use the conventional second substrate with rubbed orientation layer, attached to the first with a seal at the edges of the first substrate. This ensures proper orientation of the liquid crystal molecules (near the second substrate, for TN devices, for instance) and prevents the liquid crystal from leaking out the edges of the device."

Applicants respectfully submit, however, that no proper motivation or suggestion is found in either explicitly or implicitly in Omeis et al., either singly or in combination, for one of ordinary skill in the art to combine the two teachings and arrive at the claimed invention. Rather, such combination is suggested only by the claimed invention which is considered impermissible hindsight reconstruction. Furthermore, it is evident that the Examiner is relying on Official Notice to cure the deficiencies of Omeis et al. The Examiner may take Official Notice of facts outside of the record that are capable of instant and unquestionable demonstration as being "well-known" in the art. *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). As set forth in MPEP § 2144.03, if an applicant traverses an assertion made by an Examiner while taking Official Notice, the Examiner should cite a reference in support of their assertion. Accordingly, Applicants seasonably traverse the use of Official Notice and respectfully request the Examiner to provide a reference to support their assertions or an affidavit.

The rejection of claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Omeis et al. in view of Kim et al. is respectfully traversed and reconsideration is requested.

Claim 4 includes all of the limitations of claim 1 as discussed above, and Omeis et al. fails to teach or suggest at least the features of independent claim 1 as recited above. Similarly, Kim et al. fails to cure the deficiencies of Omeis et al. Accordingly, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness regarding claim 4 in view of claim 1, as above.

The rejection of claims 6, 12, 13, 15, and 18-20 under 35 U.S.C. § 103(a) as being unpatentable over Omeis et al. in view of Ishii et al. is respectfully traversed and reconsideration is requested.

Claim 6 includes all of the limitations of claim 1 as discussed above, and Omeis et al. fails to teach or suggest at least the features of independent claim 1 as recited above. Similarly, Ishii et al. fails to cure the deficiencies of Omeis et al. Accordingly, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness regarding claim 6 in view of claim 1, as above.

Applicants respectfully submit that similar arguments presented above with respect to claim 1 are also applicable to claims 12 and 20.

Further, in rejecting claims 12 and 20, the Examiner stated Ishii et al. “teaches [col. 21, line 66 – col. 22, line 5] that a viscosity around 25-35 centipoise [1 cp is about 1 mm<sup>2</sup>/sec since the density of liquid crystal is close to 1 g/cc]... overlaps the recited range of 20-50 mm<sup>2</sup>/sec, so a *prima facie* case of obvious in this respect exists.”

As similarly stated above, Applicants respectfully submit that it is not possible make any meaningful comparison between the “absolute” viscosity value of one liquid crystalline substance and the “kinematic” viscosity value of another liquid crystalline substance. Furthermore, while the Examiner does not use the words “Official Notice”, the Examiner

seems to be relying on Official Notice to cure the deficiencies of Omeis et al. and Ishii et al. The Examiner may take Official Notice of facts outside of the record that are capable of instant and unquestionable demonstration as being "well-known" in the art. *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). As set forth in MPEP § 2144.03, if an applicant traverses an assertion made by an Examiner while taking Official Notice, the Examiner should cite a reference in support of their assertion. Accordingly, Applicants seasonably traverse the use of Official Notice and respectfully request the Examiner to provide a reference to support their assertions or an affidavit.

Accordingly, Applicants respectfully submit that none of the cited references, including the Omeis et al. or Ishii et al., singly or in combination, teaches or suggests at least these features of the claimed invention and that claim 6, which depends from claim 1, claims 13-19, which depend from claim 12, and claim 20 are allowable over the cited references.

The rejection of claims 14, 16, and 17 under 35 U.S.C. § 103(a) as being unpatentable over Omeis et al. in view of Ishii et al. and further in view of Kim et al. and Abe is respectfully traversed and reconsideration is requested.

Claims 14, 16, and 17 include all of the limitations of claim 12 as discussed above, and Omeis et al. in view of Ishii et al. fails to teach or suggest at least the features of independent claim 12 as recited above. Similarly, Kim et al. and Abe fail to cure the deficiencies of Omeis et al. in view of Ishii et al. Accordingly, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness regarding claims 14, 16, and 17 in view of claim 12, as above.

The rejection of claims 1-3, 10, and 11 under 35 U.S.C. § 103(a) as being unpatentable over Kataoka et al. is respectfully traversed and reconsideration is requested.



Claim 1 is allowable over the cited references in that claim 1 recites a combination of elements including, for example, "wherein the deposited liquid crystal material has a viscosity greater than about 20 to 50 mm<sup>2</sup>/sec; forming a seal material at edges of the first substrate" None of the cited references, including Kataoka et al., singly or in combination, teaches or suggests at least these features of the claimed invention. Accordingly, Applicants respectfully submit that claims 2-11, which depend from claim 1, are allowable over the cited references.

The Examiner states that Kataoka et al. "does not explicitly disclose forming a seal material at edges of the first substrate" and takes Official Notice that this element "is conventional and well known [practically required] so that the liquid crystal [9] does not fall out]."

It is evident that the Examiner is relying on Official Notice to cure the deficiencies of Kataoka et al. The Examiner may take Official Notice of facts outside of the record that are capable of instant and unquestionable demonstration as being "well-known" in the art. *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). As set forth in MPEP § 2144.03, if an applicant traverses an assertion made by an Examiner while taking Official Notice, the Examiner should cite a reference in support of their assertion. Accordingly, Applicants seasonably traverse the use of Official Notice and respectfully request the Examiner to provide a reference to support their assertions or an affidavit.

Applicants believe the foregoing amendments place the application in condition for allowance and early, favorable action is respectfully solicited. Should the Examiner deem that a telephone conference would further the prosecution of this application, the Examiner is invited to call the undersigned attorney at (202) 496-7500.

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If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136. Please credit any overpayment to deposit Account No. 50-0911.

Respectfully submitted,

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**MARKED UP VERSION OF THE AMENDED TITLE**

METHOD OF FABRICATING LIQUID CRYSTAL PANEL BY ARRANGING  
LIQUID CRYSTAL ONTO A SUBSTRATE

**MARKED UP VERSION OF THE AMENDED CLAIMS**

1 (AMENDED). A fabricating method for a liquid crystal display panel comprising:  
providing [the] first and second substrates;[.]  
forming first and second orientation films on the first and second substrates,  
respectively;  
depositing a liquid crystal material on the first orientation film of the substrate,  
wherein the deposited liquid crystal material has a viscosity greater than about 20 to 50  
mm<sup>2</sup>/sec;  
forming a seal material at edges of the first substrate; and  
attaching the first and second substrates.

20 (AMENDED). A fabricating method for a liquid crystal display panel comprising:  
providing [the] first and second substrates;  
forming first and second orientation films on the first and second substrates,  
respectively;  
rubbing each of the first and second orientation films [before depositing the liquid  
crystal material];  
depositing a liquid crystal material on the first orientation film of the substrate, the  
liquid crystal material having a viscosity [of] greater than 100 mm<sup>2</sup>/sec;  
forming a seal material at edges of the first substrate;  
attaching the first and second substrates; and

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heat-treating the liquid crystal material to activate the liquid crystal and have substantially the same characteristics as a liquid crystal material having a viscosity of 20 to 50 mm<sup>2</sup>/sec.